INTERIM PERFORMANCE REPORT

STATE: **MONTANA**
GRANT TITLE: **Montana Terrestrial, Riparian and Wetlands SWG Conservation Program**
GRANT NUMBER: **T-37-HM-3, Amendment #2**

PROJECT 1. Terrestrial and Riparian/Wetland Habitat Conservation

The Missouri Coteau and Glaciated Plains of the Milk and Missouri Rivers

Accomplishments:

The Fresno and Vandalia Wildlife Management Areas (WMA) continued using prescribed livestock grazing systems to enhance riparian and shrub-grassland habitats. Grazing system improvements and cottonwood buffers were started on the Cottonwood Bend Conservation Easement and the Lower Beaver Creek Conservation Easement.

At the Rookery WMA, 24 acres of nonnative hay meadows consisting primarily of crested wheatgrass and smooth brome were broken during the fall of 2011 and spring of 2012 in preparation for planting in 2012 and 2013. There were 24 acres seeded to small grain food plots in the spring of 2012 in preparation for future reseeding to nesting cover. There were an additional 92 acres of land that had been broken and farmed during the past 3 years that were cultivated again in 2012 in preparation for seeding during the fall of 2012 and 2013. Ground was also cultivated in preparation for woody shrub plantings at the Rookery WMA in the spring of 2013. Repairs and maintenance were conducted on the irrigation system at the Rookery. A suction hose was replaced on the pump to increase the effectiveness of the pump in lower water periods. Over two miles of irrigation ditch were cleaned out to increase water flow and irrigation efficiency. Noxious weed control activities were carried out during the summers of 2011 and 2012.

Within the Hinsdale WMA, 200 cottonwood trees were planted near the entrance of the WMA. There is also significant natural regeneration of cottonwoods along the banks of the Milk River due to the 2011 flooding. Two irrigation pumps and a sprinkler were purchased to use for watering cottonwood saplings and grass reseedings in the future.

At the Milk River WMA, 26 acres of dense cattail marsh were burned to reduce cattail cover and increase open water. Future water level management will be altered to prevent cattail expansion and increase wetland productivity. Conversion of introduced grass stands has begun through tilling for eventual reseeding.

On Cree Crossing WMA the existing irrigation system was inventoried and plans continue to rehabilitate the system. This will allow for future irrigation of restoration projects around the WMA including shrub and tree plantings, permanent cover plantings, and food plots. Dense nesting cover seed was purchased to be seeded on 45 acres of cropland, with the intent of benefitting ground nesting birds. Similarly, shrub rows were planned and mesh was purchased to improve their survival.

On Dodson Dam WMA, 115 acres of cattails were contracted for aerial application of glyphosate herbicide. Cattails have expanded distribution throughout the WMA and this treatment is expected to reduce cattail densities to benefit waterfowl and shorebirds.

Acoustic bat monitoring was conducted at 10 sites along the Milk River in 2011. Big brown bats, little brown myotis, long-legged myotis, silver-haired bats, Yuma myotis, hoary bats, California myotis, and red bats were detected. An unconfirmed recording of a pallid bat was suspected. Mist netting for bats was conducted on six MRI properties and three additional sites. Only seven bats were captured in 2011 including five little brown myotis, one big brown bat, and one silver-haired bat.

Variance:
Funding was put towards two research projects focused on investigating the links between rest-rotation livestock grazing, migratory songbirds and arthropods serving as food items for sage-grouse and non-game migratory avian chicks.

Livestock grazing is pervasive and managed by private landowners, federal agencies, and state agencies across the west, and wildlife conservation objectives are often primary considerations in grazing management programs. Most recently, the Natural Resources Conservation Service has embarked on the Sage-Grouse Initiative (SGI), which provides for grazing management on private lands over a vast area with the intent of benefitting sage-grouse. Sagebrush-obligate migratory birds respond quickly to habitat changes by shifting their distributions and adapting their reproductive performance. Thus these birds can serve as an initial barometer of sagebrush ecosystem integrity and the impacts of grazing management designed to positively benefit avian communities. In 2012, the University of Montana initiated a research project building from the existing infrastructure established by Montana Fish Wildlife and Park's sage grouse research, to evaluate the impact of SGI's rest-rotational grazing regimes on migratory bird species associated with sagebrush landscapes. In addition to this, Montana State University initiated a second research project to evaluate the impact of SGI's grazing regimes on the food sources of sage grouse and migratory bird species. The results of these studies will inform sustainable and economically viable land management practices that maintain habitat for sage grouse and migratory birds.

Work on both projects began in May of 2012 by 1) determining avian species presence in the study area, 2) evaluating the sampling frames, 3) evaluating two bird survey methods, 3) describing species richness, 4) estimating avian species abundance, 5) collecting arthropod samples, 6) collecting vegetative plant community data and 7) measuring livestock utilization in grazed and rested pastures.

The preliminary results from data collection suggest the highest presence of Brewer's sparrow, Vesper sparrow, Western meadowlark, McCown's longspur, and chestnut-collared longspur in the study area. The University of Montana is currently evaluating sampling plot size and design (e.g., square or circle) and two bird survey methods including the number of sampling occasions needed per sampling plot. Montana State University is identifying and cataloging

arthropod specimens relative to grazing prescriptions. Logistical and statistical aspects of both projects are being reviewed and may influence field protocols for following years.

Northwest Montana:

Accomplishments:

Four interns and two technicians were hired to assist with nongame surveys and loon management activities in Northwest Montana under the supervision of a nongame biologist. Peregrine falcon, bald eagle, golden eagle, common loon, Coeur d'Alene salamander, and short-eared owl surveys were completed. Coordinated nongame survey efforts across Northwest Montana with survey crews, area biologists, and interagency staff occurred. Efforts included surveys in subalpine and alpine habitat in the Bob Marshall Wilderness, the Whitefish Range, and the Mission Mountains for species likely to be impacted by climate change. Those species included hoary marmots, pika, white-tailed ptarmigan, bog lemmings, gray crowned rosy finch, and Clark's nutcrackers. Raptor survey routes were completed in the Swan and Clearwater Valleys, the Lower Clark Fork and Thompson River Valley, and the Flathead Valley north of Kalispell. Amphibian surveys were conducted to determine Species of Concern presence at the several wetlands on the Flathead National Forest. Efforts continued on a pilot project to document movement/presence of wolverines with surveys conducted in the Purcell Mountains north of Libby.

All of the above information was used to determine highest priority habitats and properties for conservation work to ensure future habitat availability and connectivity for these species.

Variance:

None

Bird Conservation Coordinator:

Accomplishments:

Montana Fish, Wildlife and Parks, in conjunction with Rocky Mountain Bird Observatory, USDA Forest Service, USDI Bureau of Land Management, Northern Great Plains Joint Venture, South Dakota Game, Fish and Parks, Wyoming Natural Diversity Database, Audubon Wyoming, Wyoming Game and Fish Department, and other partners continue landbird monitoring throughout all of the Badlands and Prairies Bird Conservation Region, and large portions of the Prairie Pothole, Northern Rockies, Southern Rockies and Colorado Plateau, and Shortgrass Prairie Bird Conservation Regions. This Integrated Bird Monitoring by Bird Conservation Region program uses a newly-developed, spatially-balanced sampling design with the Bird Conservation Region as the sampling frame and stratification by land management boundaries and ecoregional attributes. This monitoring design allows inferences about avian species distributions and population sizes from small scales to entire Bird Conservation Regions, facilitating conservation from fine scales to national and international levels. It also provides the baseline data necessary to prioritize habitats for conservation, restoration, and management.

Surveys at 18 key wetland sites were continued in 2012 as an extension of the Western Colonial Waterbird Survey. A draft of the Colonial Waterbird Atlas for Montana, prepared by the USFWS using the 2009-2011 waterbird data, is currently being reviewed and edited. This information will be used for future wetland conservation prioritization.

In cooperation with the Montana Audubon and Yellowstone Audubon Chapter, Montana Fish, Wildlife and Parks continues to assist with efforts to gather data necessary to nominate parts of the Yellowstone River as an Audubon Important Bird Area and thusly prioritize the area for future conservation efforts.

In cooperation with the Intermountain West Joint Venture and Montana Bird Conservation Partnership, Montana Fish, Wildlife and Parks continues to work on the development of a long-billed curlew initiative to prioritize grassland conservation in Western Montana. This initiative will follow the Strategic Habitat Conservation model and will use the best available science to prioritize grassland conservation, engage habitat delivery partners, and monitoring effectiveness of conservation action. Several of the habitat delivery professionals in Montana, including USFWS Partners for Fish and Wildlife, The Nature Conservancy, Confederated Salish and Kootenai Tribes, and others, support the initiative. Montana Fish, Wildlife and Parks will use information from statewide curlew surveys (see below) to help prioritize conservation priority areas. This work is ongoing.

Variance:
None

Black-Footed Ferret Habitat Conservation and Restoration Prioritization:
Accomplishments:
With the goal of putting statewide survey information to use in conservation planning, five large prairie dog complexes located in southeastern and central Montana were mapped during May and June 2012. These prairie dog complexes were identified as being greater than 5,000 acres of occupied prairie dog habitat from 2009 aerial photos. Landownership within these complexes was largely private, but Montana state and Federal (BLM, USFWS) lands were also present. These prairie dog complexes were identified as the Little Powder River Complex, Big Lake Complex, Custer County Complex, Musselshell County Complex, and Petroleum County Complex. Suspected plague epizootics had occurred or were occurring at all complexes except the Little Powder River Complex. Significant prairie dog poisoning activity was reported by landowners at the Little Powder River and Custer County Complexes. At the Little Powder River Complex, 94 colonies were viewed from public roads and 70 colonies were mapped. Seven colonies were determined to be inactive presumably from poisoning. A total of 2,883 acres of prairie dog occupied habitat was mapped. At the Big Lake Complex, 60 colonies were viewed from public roads and 30 colonies were mapped. Two colonies were determined to be inactive. A total of 2,302 acres of prairie dog occupied habitat was mapped. A plague epizootic appeared to have started in this complex in 2011, and prairie dogs were noted to decline in 2 colonies during this mapping effort. At the Custer County Complex, a total of 74 colonies were viewed from public roads and 56 were mapped. Five colonies were determined to be inactive. A total of 1,678 acres of prairie dog occupied habitat was mapped. The eastern portion of this complex showed significant reduction in prairie dogs from plague and poisoning since to 2009 aerial photos, while the impact of plague in the western portion was much less. The Musselshell and Petroleum County Complexes were adjacent to each other and are treated as a single complex. In this complex, 29 colonies were viewed from public roads and 19 were mapped. Two colonies were determined to be inactive. A total of 466 acres was mapped. Most colonies in this complex

showed significant reduction in area since 2009, presumably from plague. Conservation planning in 2012 and 2013 for prairie dogs and black-footed ferrets will be based on this work.

Variance:
None

PROJECT 2. Species-Based Conservation

Northwest Montana:
Accomplishments:
Four interns were hired to assist with nongame surveys and loon management activities in Northwest Montana under the supervision of a nongame biologist. Peregrine falcon, bald eagle, great blue heron, common loon, and short-eared owl surveys were completed. Coordinated nongame survey efforts across Northwest Montana with survey crews, area biologists and interagency staff occurred. Efforts included small mammal trapping, bat trapping, raptor surveys, and amphibian surveys to determine Species of Concern presence at the following areas: Foys Bend Fisheries Conservation Area, North Swan WMA, Ninepipe WMA, Thompson Chain of Lakes, Kootenai Falls WMA. In addition a pilot project was conducted to document movement/presence of wolverines in the Salish Mountains northwest of Kalispell.

Variance:
None

Bird Conservation Coordinator
Accomplishments:
The All Bird Conservation Coordinator held one meeting of the Montana Bird Conservation Partnership and continued to clarify needs and objectives of the Partnership. The coordinator is a Joint Venture steering committee chair, Joint Venture action group coordinator, and has coordinated efforts among all three of the Joint Ventures in Montana. The coordinator participated in a Prairie Pothole Joint Venture planning meeting, coordinated partner presentations to the Northern Great Plains Joint Venture Management Board, and facilitated submission and ranking of capacity grants for the Intermountain West Joint Venture. The coordinator has worked with the University of Montana, Montana Audubon, Rocky Mountain Bird Observatory, US Forest Service, and Montana Natural Heritage Program to complete much needed avian research and monitoring. Statewide coverage of the landbird monitoring program was implemented in 2010. Statewide waterbird monitoring continued in 2012. Species-specific monitoring surveys were coordinated for long-billed curlew, Sprague's pipit, and mountain plover in 2012.

Working relationships have been formed with other state coordinators through Flyway committee representation, i.e. Nongame Technical Committee, that have furthered Montana's involvement in range-wide species management. The coordinator's participation in the Flyway committee has also broadened Montana's involvement in and awareness of the draft USFWS Eagle Conservation Plan Guidance and USFWS Land-Based Wind Energy Guidelines. The Coordinator also engages with the Western Working Group of Partners in Flight and attended one regional meeting to discuss sagebrush habitat conservation. The coordinator tracked issues

related to listing decisions for Sprague's pipit and mountain plover. The coordinator also continued to facilitate efforts of the Montana Peregrine Falcon Working Group and Montana Golden Eagle Working Group. These Working Groups held two meetings in 2011 and two meetings in 2012 total. In cooperation with the golden eagle working group, the coordinator is taking the lead on developing Montana Golden Eagle Management Guidelines. The guidelines are intended to provide guidance for new development (e.g., subdivision, oil/gas) in areas important for golden eagles. Montana Fish, Wildlife and Parks conducted surveys for nesting golden eagles opportunistically in 2012 to enhance the statewide database which is used for making management decisions and recommendations.

Variance:
None

PROJECT 3. Survey and Inventory Conservation Activities

Bat, Amphibian, Reptile, Small Mammal and Bird Diversity Monitoring
Accomplishments:
Diversity Monitoring project: During the period from 2008 to 2010, 3863 individual surveys were conducted during 213 days at 3,048 unique locations within 282 individual quads within Montana. The number of quads sampled represents 3% of available quads for the entire state. A majority of sampling occurred on private property (51%), with additional sampling occurring on US Forest Service property (16%), Bureau of Land Management property (13%), State land (12%) and other lands (9%). During structured surveys, 5,806 species detections were recorded, and of those detections, 84 unique species were identified. Species were detected at most small mammal, bat acoustic, and lentic site surveys, however, reptile search survey detections were less productive. For small mammal, lentic site, and reptile surveys, most detections were identifiable to a species although a few detections did not result in species identification either because there was not an accompanying or acceptable voucher specimen that could be used to verify the record or the specimen could simply not be identified to the species level. Many bat acoustic call sequences did not have definitive species specific call sequences and therefore were identified only as 'probable' species detections. Only definitively identified bat acoustic call sequences were included as acceptable observation records. In addition to structured survey observations, 5,912 species observations were recorded incidentally at 2,634 different locations. The number of detections and number of different species detected for each sample type varied considerably by geographic location. In general, the number of bat species detected was highest along the length of the Missouri River and lowest in the northern quarter of the state. The number of species detected at lentic sites was highest in east-central Montana than in western Montana. For small mammals, the number of species detected at survey sites was highest in eastern Montana and lowest in southwestern Montana.

The average amount of time spent surveying varied by survey type. Because small mammal trap lines and bat acoustic detector surveys were overnight efforts, those surveys lasted for longer periods of time (851 and 750 minutes, respectively) when compared to lentic and reptile search surveys which were discrete events lasting an average of 34 and 45 minutes, respectively.
Occupancy rate was estimated for each species captured at two different spatial scales; a statewide scale and within the boundaries of the known range of a species within Montana.

Detection probability was also estimated at both a statewide scale and within the boundaries of the known range of the species within Montana. Estimates of detection probability for each species did not vary between statewide and within range scales. We found that detection probabilities varied greatly between species and species guilds. For example, most shrews and voles had detection probabilities less than 0.6 and were difficult to detect, whereas most squirrels and mice were easily detectable and had detection probabilities greater than 0.75.

An extensive report on this multi-year, statewide project is *in prep* and will be submitted upon completion.

Bats and Cave Monitoring: Montana Fish, Wildlife and Parks continued to work with the Montana Natural Heritage Program to monitor bat presence, hibernacula, and cave conditions statewide. Volunteers from the Northern Rocky Mountain Grotto were recruited in 2012 to assist in the placement of acoustic detectors and climate recorders. Over 30 sites of interest are currently being monitored across the state covering a diverse array of land ownership and habitat type.

Wildlife Management Area Monitoring: Efforts included small mammal trapping, bat trapping, raptor surveys, and amphibian surveys to determine Species of Concern presence at the following areas: Marshall Creek WMA, Fish Creek WMA, Foys Bend Fisheries Conservation Area, North Swan WMA, Ninepipes WMA, Thompson Chain of Lakes, and Kootenai Falls WMA. Targeted bog lemming survey work was conducted at a number of locations in western Montana. Processing and identification of small mammal voucher specimens collected in 2011 and 2012 is underway.

Songbird point count surveys were conducted on Marshall Creek, Blackfoot-Clearwater, and Spotted Dog WMAs. Acoustic waterbird surveys, specifically for American bittern detection, were conducted on Marshall Creek and Blackfoot-Clearwater WMAs. Black swift surveys were conducted in the Seeley Lake area, and Cour d' Alene salamander surveys were conducted on the Fish Creek WMA. Peregrine falcon monitoring was conducted opportunistically. Data is currently being summarized and analyzed.

Bird Point Counts: Montana Fish, Wildlife and Parks, in conjunction with Rocky Mountain Bird Observatory, USDA Forest Service, USDI Bureau of Land Management, Northern Great Plains Joint Venture, South Dakota Game, Fish and Parks, Wyoming Natural Diversity Database, Audubon Wyoming, Wyoming Game and Fish Department, and other partners continued landbird monitoring throughout all of the Badlands and Prairies Bird Conservation Region, and large portions of the Prairie Pothole, Northern Rockies, Southern Rockies and Colorado Plateau, and Shortgrass Prairie Bird Conservation Regions. This Integrated Bird Monitoring by Bird Conservation Region program uses a newly-developed, spatially-balanced sampling design with the Bird Conservation Region as the sampling frame is stratified by land management boundaries and ecoregional attributes. This monitoring design allows inferences about avian species distributions and population sizes from small scales to entire Bird Conservation Regions, facilitating conservation from fine scales to national and international levels. It also provides the baseline data necessary to prioritize habitats for conservation, restoration, and management.

One hundred and eighty six transects were surveyed in Montana between 25 May and 20 July, 2011. Field technicians conducted 2,051 point counts and detected 194 bird species in Montana, including 33 priority Species of Concern. Density and population estimates were calculated for 125 species, 15 of which are priority species. The data yielded robust density estimates (CV < 50%) for 87 of these species. The proportion of transects occupied (Psi) was estimated for 140 species, 16 of which are priority species. The data yielded robust occupancy estimates (CV < 50%) for 106 of these species.

Efforts continued statewide in Montana in 2012 with the Avian Science Center at the University of Montana supervising field work in Montana Fish, Wildlife and Parks Regions 1, 2, 3, 5, and 7; and Montana Natural Heritage Program supervising crews in Regions 4 and 6. Over 190 sampling units were selected in 2012. Data are currently being summarized and analyzed.

Long-billed Curlew Surveys: Surveys for long-billed curlews have been needed to provide baseline distribution and abundance data. This data will be used in conservation planning and as part of an effectiveness analysis following conservation action associated with the long-billed curlew initiative. Planning commenced in 2011-2012 when we identified the following objectives: 1) collect baseline distribution information, 2) estimate current density and occupancy rates, 3) identify habitat characteristics associated with higher occupancy rates and/or density, 4) identify priority landscapes to manage for higher curlew abundance, and 5) collect baseline date for effectiveness monitoring in curlew initiative focal areas.

This work was implemented in cooperation with Montana Audubon in 2012 and surveys were conducted between April 8 and May 21. We randomly selected townships in potential curlew habitat (defined as non-forested, non-urbanized areas) using a spatially-balanced sample distribution. Surveys consisted of 10, five minute point counts spaced 800m apart on county, private, or unimproved roads within the selected township. We selected 200 townships for sampling. Data are currently being summarized and analyzed.

Cuckoo Surveys: During the summer of 2012, the Montana Natural Heritage Program conducted playback surveys for yellow-billed cuckoo and black-billed cuckoo at 104 publicly accessible locations along the Musselshell, Milk, Missouri, Teton, and Marias Rivers. Areas surveyed included: (1) nearly all publicly accessible locations along the Musselshell River between its mouth on the Missouri River and the headwaters of the South Fork of the Musselshell near Lennep; (2) nearly all publicly accessible locations along the Milk River between Havre and its mouth on the Missouri River; (3) the Missouri River between Fort Peck and the North Dakota border; (4) two bridge crossings on the lower Teton River; and (5) one bridge crossing on the Marias River near Loma. At each location, three minutes of passive listening was followed by five minutes of playing both species calls at the beginning of each minute and then listening the remainder of the minute, which was followed by a final two minutes of passive listening. No yellow-billed or black-billed cuckoos were detected during the surveys, but hundreds of other bird, mammal, amphibian, and reptile observations were recorded at the playback locations or while traveling between survey locations. Both cuckoo species are irruptive in Montana, with irruptions potentially tied to tent caterpillar outbreaks. Tent caterpillars were detected at a number of sites, but were not extraordinarily common. Thus, additional playback surveys are recommended in the future in order to document the distribution

and prevalence of these species in both irruptive and non-irruptive years. Incidental species observations and cuckoo survey locations will be entered into the Point Observation Database housed at the Montana Natural Heritage Program and this information will be made available to resource managers and the general public through the Montana Field Guide, Natural Heritage Tracker, and Natural Heritage MapViewer websites.

Variances:
None

Mountain Plover Surveys:
Accomplishments:
Surveys for mountain plovers were needed to assess population status and geographic distribution across Montana. Planning for a rigorous survey began in 2010 when the following objectives were identified: (1) estimate relative probability of occupancy across the state in known and predicted mountain plover habitat, (2) estimate trends in occupancy by habitat across the state, (3) estimate trends in abundance/density in core areas using historical permanent census stations and new survey sites, and (4) identify habitat associations at a broad scale when and where possible.

Surveys were conducted between May 15 and June 30, 2011. Randomly selected points were distributed over four different strata; *core* habitat with and without prairie dog activity and *predicted* habitat with and without prairie dog activity. Two hundred seventy-five primary points and 201 oversample points were selected for 10 minute point counts. Surveys were run two weeks later than the suggested May 1 – June 15 survey period due to extremely wet spring conditions, extensive flooding of sites and roads and reduced accessibility throughout much of the survey area due to washed out or closed roads. One hundred eighty-eight points were visited at least once, 161 points received two or more visits. Mountain plovers were detected on 18 different surveys at 13 different points. A total of 26 birds were detected.

In 2012, surveys were conducted between May 1 and June 22. The survey design was revised in 2012 from a point based sampling scheme to a 1 km^2 block sampling scheme surveyed at three points. It remained a road-based design and strata remained the same as 2011. We randomly selected 500 1-km^2 blocks for surveys. Data are currently being summarized and analyzed.

Variances:
None